



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
CHEMICAL SAFETY AND  
POLLUTION PREVENTION

**MEMORANDUM:**

**To:** Julie Breeden-Alemi, DVM

**From:** Eric Bohnenblust, Ph.D., Entomologist

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**Secondary Review:** Jennifer Saunders, Ph.D., Acting Senior Entomologist

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**Date:** July 20, 2016

**Subject:** PRODUCT PERFORMANCE DATA EVALUATION RECORD (DER)

**THIS DER DOES NOT CONTAIN CONFIDENTIAL BUSINESS INFORMATION**

**Note:** MRIDs found to be **unacceptable** to support label claims should be removed from the data matrix.

**DP barcode:** 434034

**Decision no.:** 517433

**Submission no:** 987052

**Action code:** R340

**Product Name:** Thermacell Mosquito Repellent

**EPA Reg. No or File Symbol:** 71910-2

**Formulation Type:** Spatial Repellent

**Ingredients statement from the label with PC codes included:**

d-Allethrin 21.97% PC: 004005

**Application rate(s) of product and each active ingredient (lbs. or gallons/1000 square feet or per acre as appropriate; and g/m<sup>2</sup> or mg/cm<sup>2</sup> or mg/kg body weight as appropriate):** One appliance per 225 square feet

**Use Patterns:** Outdoor spatial repellent to repel insects including mosquitoes and black flies. Do not use indoors or in tents.

**I. Action Requested:** The registrant submitted a study for review to confirm that a new heat source known as the "Backpacker device" is as effective as other heat sources.

**II. Background:** The registrant submitted a study evaluating an additional heat source to determine if the heat source disperses the active ingredient as well as the other appliances so that data may be bridged to support this additional heat source.

**III. MRID Summary:**

**49879601.ThermaCELL® Back Pack Mosquito Repellent Representative Device Temperature Data: Final Report.**

(1) non-GLP

(2) **Methods:** This study evaluated the ability of a hydrocarbon fuel canister as a source of heat to maintain temperatures over the course of a four-hour period. The heat source is designed to heat mats impregnated with

21.97% w/w allethrin, vaporizing the insecticide for use as a spatial repellent product. The unit evaluated in this study is the ThermaCELL® Back Packer (BP-1) which uses the same pressure regulator found in the first ThermaCELL® repellent product launched in 1999. A canister containing 230 g of fuel was attached to one regulator unit, switched on, and allowed to run for 4 hours. After four hours, the canister was removed from unit one and attached to unit two and run for four hours. After the run on unit 2, the fuel level was reduced to 20 g and run for four hours on unit 1, removed, and run for another four hours on unit 2. This process was repeated 10 times for each unit and each canister fuel fill level (230 g or 20 g of fuel). In total data were collected for 40 runs. Temperature measurements were made with Class K Thermocouples (0.010-inch diameter wires).

(3) **Results:** When a full canister was tested, temperatures for unit one averaged 171°C after thermal equilibrium for unit and for unit two averaged 160°C. The range for tests using full canisters was 158-172°C. When an almost empty canister (20 g) was tested, temperatures averaged 177°C after thermal equilibrium for unit one and for unit two averaged 164°C. The range for tests using almost empty canisters was 164-177°C. The average temperatures for the other devices used to vaporize allethrin are for the MC-1 device 163°C, for the MR-1 device 171°C and for the SCJ candle 157°C. A temperature of 150°C is required to release allethrins from the treated mats.

(4) **Conclusion: Supplemental.** This study shows temperature data that are similar to the other registered devices and very consistent; therefore, these data will support the bridging of data conducted using the other heat sources (MC-1, MR-1, SCJ candle) to support efficacy claims for the “Backpacker device” heat source.

#### **IV. EXECUTIVE DATA SUMMARY:**

(A) These data support that the “Backpacker device” produces a temperature necessary to vaporize allethrin from the mat inserts and produces a temperature profile similar to the other devices (MC-1, MR-1, SCJ candle) registered for vaporizing allethrins for ThermaCELL® products. These data will support the bridging of efficacy data conducted using the other heat sources to support efficacy claims for this device.

#### **V. LABEL RECOMMENDATIONS:**

(1) Note to reviewer/PM: This study does not directly test the efficacy of the product against any specific pests, therefore all labeling related to product efficacy associated with the other devices used to vaporize allethrins pertains to this device.